

FURTHER NOTE ON DEGENERATIONS FOLLOWING LESIONS OF THE CEREBRAL CORTEX. BY C. S. SHERRINGTON, M.A., M.B.

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WHEN, in result of lesion of the cortex of the cerebral hemisphere a degeneration in the pyramidal tract ensues, nerve-fibres in a state of degeneration may be detected scattered in certain regions of grey matter. These regions of grey matter in which, in association with pyramidal degeneration, scattered fibres may be found degenerating, are:

- i. the ventral grey cornu of the spinal cord;
- ii. the lateral grey cornu of the spinal cord;
- iii. islanded grey masses in the pons lying close to fibre-bundles of the crustal tracts, among the deep transverse pontial fibres (*stratum complexum pontis*);
- iv. a mass of grey matter lying in the mesial third of the crustal portion of the crus cerebri (a well-defined mass in monkey);
- v. the substantia nigra of the crus, more especially the ventral portion of it.

There are sources of fallacy attending the recognition of isolated degenerated nerve-fibres in the grey matter, which must be discussed in a fuller communication than the present. Returning however to the same observations repeatedly in the past three years, one has become convinced that in the above-mentioned situations an indubitable degeneration of scattered nerve-fibres does follow lesions of the hemispherical cortex. Interest attaches to these fibres because it seems justifiable to infer concerning them that they are connected on the one hand with the grey matter in which they lie, on the other hand with the pyramidal tract undergoing degeneration.

The degenerated fibres in question appear to be always of small size, although in the pyramidal tract itself many of the fibres undergoing degeneration are large. It may therefore be that the pyramidal fibres of large size become reduced in size when they penetrate into grey matter, perhaps because they then undergo subdivision.

In the spinal cord I have not been able to find in association with pyramidal degeneration any degeneration of nerve-fibres in the grey matter of the vesicular column of Clarke.

It has been noticeable that after cortical lesion confined nearly if not completely to the "leg-area" (Horsley, Schäfer, Beevor), and therefore presumably not implicating portions of the pyramidal tract destined for cranial nuclei, a considerable number of degenerated fibres occur scattered in the substantia nigra of the crus. The question arises are these fibres to be considered of the pyramidal system as that is defined by excitation experiments, or of some other system which also degenerates from the cortex downward?

